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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Group: 1725

Confirmation No.: 4154

Application No.: 10/077,391

Invention: CASTING STEEL STRIP

Applicant: Nikolovski et al.

Filed: February 15, 2002

Attorney

Docket: 29385-69914

Examiner: Tran, Len

Certificate Under 37 CFR 1.8(a)

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on July 14, 2003

E W Beard
(Signature)

Eric W. Beard

(Printed Name)

RESPONSE AND REQUEST FOR EXTENSION OF TIME

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This letter is responsive to the Office Action dated March 13, 2003.

Enclosed is a check in the amount of \$110.00 for a one month extension of time.

Please charge any additional fees, or credit any overpayment in connection with this request,
to Applicants' undersigned counsel's deposit account 10-0435 with reference to matter no.
29385-69914.

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Claims 1 through 21 are pending. Applicants respectfully request reconsideration and allowance of claims 1 to 21 in view of the following comments.

Claims 1 to 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Strezov et al (US 5,701,948) in view of Irie et al (US 4,368,084) and Suichi et al (US 5,227,251). Claims 11 to 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Strezov et al in view of Irie et al and Suichi et al as applied in claim 9 in view of JP 08294751. Claims 20-21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Strezov et al in view of Irie et al and Suichi et al as applied in claim 9 in view of JP 08294751 in view of JP 58-29547.

Applicant respectfully submits that the cited references are evidence that the claimed subject matter is **non**-obviousness.

Specifically, Strezov et al discloses continuous casting of steel strip using casting surfaces textured by providing parallel groove and ridge formations (11) defining v-shaped grooves (12) and ridges (13) with sharp edges (14). The depth (d) of the texture from the ridge peak to groove root is in the range of 5 to 50 microns and the pitch (p) between the grooves is in the range 100-250 microns. The casting surfaces may be the peripheral surfaces of the casting rolls of a twin roll caster.

There is no disclosure or suggestion in Strezov et al of a method of continuously casting steel strip where the casting surfaces have a texture formed by a random pattern of discrete projections. To the contrary, Strezov et al emphasizes throughout the '948 patent that the texture of the casting surfaces must be a specific regular grooved/ridged formation with sharp edges. The Office Action states that Strezov et al discloses "wherein the texture have surface distribution between 5 and 100 peaks per mm square and average height of at least 10 microns to 20 microns," citing Col. 3, ll. 7-12. Applicants respectfully disagree. Nowhere in the cited passage, or anywhere in the '948 patent, could be found any disclosure of "peaks" in any surface distribution, let alone peaks of the specific surface distributions set forth in claims 3 and 10 of the presently claimed subject matter.

Similarly, Suichi et al discloses a texture pattern for the casting surfaces of a twin roll caster where a texture of cooling surface again has a regular pattern, namely a tortoise shell pattern, having a circle equivalent diameter of 3 to 200 microns surrounded by a dimple having a depth in the range of 5 to 30 microns formed on a thin continuous cast plate. The tortoise shell pattern is formed by conducting casting while regulating the overheating

temperature, ΔT , of a molten metal in a pouring basin of a movable casting mold type continuous casting machine at 15° or below.

Like Strezov et al, Suichi et al is evidence of **non-obviousness** of the presently claimed subject matter. There is no disclosure of suggestion of providing on casting roll surfaces a random pattern of discrete projections of any kind. To the contrary, Suichi et al discloses that the pattern is in a specific tortoise shell pattern. The Official Action relies upon the statement at Col. 2, ll. 14-16 that "the term 'tortoise shell pattern' is intended to mean an irregular pattern substantially surrounded by a dimple". That statement has no meaning except as shown in Fig. 3 as to what a tortoise shell pattern is. Plainly, taking the teaching of the '251 patent as a whole, the tortoise shell pattern is in fact a specific pattern, and not a random pattern of discrete projections. Applicants submit that the rejection assumes the disclosure of the present invention to attempt glean from the '251 patent a disclosure that is not there, which is improper as a matter of law.

Irie et al is remote prior art. Irie et al is not even directed to thin roll casting. Rather, Irie et al is directed to hot rolling of steel to produce non-aging cold rolled steel sheets having a very excellent formability of a specific composition. Moreover, there is no disclosure of texture surfaces used on the rolls used for hot rolling the steel in Irie et al. Irie et al does not disclose, or suggest neither alone or in combination with the other cited references, the use of a method where casting strip is moved away from the casting rolls at a speed in the range of 75 meters per minute as described in claim 7.

JP 08294751 does disclose a casting drum for a twin roll caster. However, JP '751 does not disclose a casting surface with a random pattern of discrete projections. The Office Action tacitly admits this fact. The Office Action states that "JP '752 discloses casting surface formed of shot blasting or irregular pattern and **covered by a protective coating**, such as nickel and chromium for the purpose for providing a thin slab **having a smooth surface**". [emphasis added] If the casting surface is covered by a protective coating to provide a smooth surface, it necessarily does not have a casting surface with a random pattern of discrete projections.

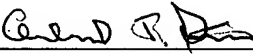
JP '751 is also submitted to be evidence of **non-obviousness** of the claim subject matter. Specifically, it proposes to the extent it discloses shot blasting or electroplating to be used in forming the under layment for the casting surface; it teaches that shot blasting or electroplating cannot be utilized in making the casting surface itself.

JP 58-29547 is submitted to be remote prior art. It is asserted that "JP '547 discloses a coating formed on of composition consisting of Co, Mo and Cr, for the purpose of protecting the inner surface of the **mould**". Here JP '547 patent does not bridge the gap in the deficiencies of the disclosure of the other references cited. Accordingly, JP '547 alone, or in combination with the other cited of references, does not disclosure or suggest the claimed subject matter of the present invention.

Applicants submit that the claims 1-32 are in condition for allowance and should be allowed. If the Examiner has any questions after reviewing the references in view of the above comments, applicants respectfully request that the Examiner arrange an interview with applicants counsel, Arland T. Stein, Esq. (317-231-7390).

Respectfully,

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